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TO STUDY EGYPTIAN CIVILIZATION OF 7000 YEARS BEFORE PYRAMIDS

By E. N. Fallaize,
Secretary of the Royal Anthropological Institute, London.

It would appear probable that another chapter will soon be added to the already long history of civilization in Egypt; and should the anticipations of the great egyptologist, Sir Flinders Petrie, be fulfilled, it may be expected that fresh discoveries will also serve to throw light upon the origin and development of certain elements in the culture of early men in Europe as well as in the Nile Valley. With this in view, an expedition which includes among its members Miss Caton-Thompson of Cambridge, England, and Mr. G. Carline of the Halifax Museum, Yorkshire, England, has been fitted out on behalf of the British School of Archaeology in Egypt to investigate the ancient culture of the Fayum Desert.

Miss Caton-Thompson recently returned from the Fayum, where her investigations have produced some remarkable results. Her object was to study the flint industry of this district, which is remarkable for the beautifully even character of the chipping of the knives and other implements of stone. These, in the skilful nature of their workmanship, resemble the flint work of palaeolithic man in Europe in the Solutrean age.

Solutrean man is so called because of the implements, particularly knives and spear points, of especially fine workmanship, which were first found at Solutre in France, but have since been discovered at Palaeolithic stations in various parts of Europe. The Solutrean culture belongs to the upper palaeolithic and represents an incursion into Europe from the East during or at the end of the time that Aurignacian man was living in caves, in France, Spain, and elsewhere, carving and engraving animal forms in bone and ivory and painting their figures for magical purposes on the walls of his caves to ensure a good and constant supply of game. Solutrean man fed largely on the horse, as is shown by the thousands of bones of this animal which have been found near his dwelling places. Doubtless he had followed on the skirts of the great droves of horses which had swept across the great grass plains which then stretched across the plains of Central Europe just as the Plains Indians followed the great herds of bison.

Is it possible to connect the finely chipped flint industry of early Egypt with the implements of similar workmanship in Europe? Miss Caton-Thompson's investigations have already brought to light some remarkable finds, among them pottery of a very rough kind in the shape of saucers and cooking vessels, very poorly fired. These were found in prehistoric camping grounds. In some cases a careful owner had placed the pots out of harm's way on a limestone ledge, and one of them contained five lumps of haematite, a red iron ore, with parts of a flint nodule, and twelve shells of a freshwater bivalve. Even more remarkable were a

number of bone implements, harpoons with barbs and points, the first examples of the working of bone to be discovered in connection with the Fayum culture.

Stone implements of the Fayum type have been found in Egypt from the Siwa Oasis, through the Fayum Oasis, eastwards to the Wady el Arish and thence up to Palestine at Gaza and Ascalon. Another extension of greater importance has been brought to light by the excavations of the British School of Archaeology on a site called Badari, 30 miles south of Asyut, where a settlement was found with flints of the Fayum type. There, however, these flints were found in graves for the first time, and not on the surface, as in the Fayum. During three winters the expedition has worked on this site, finding not only flint implements, arrow heads, adzes, and the like, of the Solutrean form, but pottery very finely glazed and very hard, ivory statuettes and ivory combs, spoons, and other objects.

The date of the settlement in the Fayum is fixed by Sir Flinders Petrie at some time between 12,000 to 13,000 B. C.; for the level in which these objects were found was covered by the Nile after that date and was only dried up again when the Ptolemies stopped the flow of the Nile into the Fayum to acquire cultivable land.

Sir Flinders Petrie therefore suggests that this early culture in Egypt is derived from the same source as the Solutrean culture of Europe. He thinks that a people, originating possibly in the Caucasus or by the Caspian, split into two sections, one passing into Europe, and the other southward into Africa. Against any relation of this kind between the Solutrean culture of Europe and the Badarian culture of Egypt, as it is proposed to call it, it is argued that while pottery is associated with the culture both in the Fayum and at Badari, no palaeolithic pottery has ever been found in Europe. Sir Flinders Petrie, however, holds that the southward bound branch, passing on its way to Egypt through a favorable climate, would be able in these easy conditions to preserve its original culture, whereas the European Solutreans, hunting and fighting their way along the glacial fringe, would not be able to carry pottery and, therefore, lost the art of making it.

INFLUENZA EPIDEMIC DECLARED POSSIBILITY

The world has been afflicted with an unusual amount of influenza and pneumonia during the last six months. While medical authorities will not predict an epidemic like the one of 1918, they admit its possibility.

Three factors make an influenza epidemic a grave contingency: first, its apparently cyclic character; second, the coal strike; third, lack of knowledge with respect to its control.

Cyclic character means that it is likely to come back again and this is demonstrated by study of its previous occurrence. The big influenza epidemics of the past, notably in 1889 and 1918 have been characterized by recurring waves in the succeeding years. After about 1894, unfortunately, influenza faded out of public attention, until by 1918 much valuable knowledge acquired in the earlier epidemic had been forgotten. Dr. Victor C. Vaughan of the National Research Council has expressed himself, in a recent talk, as of the opinion that the present outbreak is a secondary wave of this sort.

The second factor, the coal strike, would make a recurrence of a big epidemic go hard with us. Many have attributed the increase of influenza to the scarcity and inferiority of the fuel supply though this hardly accounts for its presence in the countries that have not been in the throes of a coal strike. Insufficient heat, while it may not be a cause, has undoubtedly been an aid and abetment in the current prevalence of both influenza and pneumonia.

It is discouraging to learn that years of research will probably be necessary to give the world information as to the best means of combating this potential plague. Another epidemic would find the medical profession quite as impotent to deal with it as in 1918, according to Dr. Vaughan. Its causative agent is unknown. A vast amount of bacteriological work has been done on the subject but medical science cannot come to any definite conclusions concerning the agent that really produces plain unadulterated influenza. The complications such as bronchitis and pneumonia that frequently follow have rendered isolation of the organism causing primary influenza particularly difficult. Various vaccines in use as a safeguard have met with nearly as much failure as success.

The best preventive measure, impractical as it sounds, when influenza assumes any very serious proportions, is to keep in the best physical condition possible, and to stay away from crowds. In other words the best way not to get it is to avoid it.

EVOLUTION EVIDENCE HIDDEN IN HUMAN VEINS

Hidden away in the interior of man's veins are indications that his ancestors once walked in a stooping position, according to Dr. C. W. Stiles of the U. S. Public Health Service.

In the veins of human beings, as well as of the lower animals, Dr. Stiles stated, there are numerous little check-valves, that relieve the back-pressure of the blood and prevent it from flowing the wrong way. In all cases in animals, these valves are found in veins where the blood commonly flows "uphill" toward the heart, as in the veins of the legs and arms. In animals the blood must flow "uphill" also in the veins that lie beneath the ribs, since the animals carry the trunk of the body horizontally and the ribs therefore hang vertically. But in the veins that run horizontally, notably the great trunk vein that runs along beneath the backbone, no valves are needed to prevent back pressure, and none are found in this position.

In man, however, the trunk is carried vertically, so that the relative positions of the veins are exactly opposite to those in the animals, the rib-veins being horizontal instead of vertical and the great vein of the back being vertical instead of horizontal. Yet the valves in human veins follow the same pattern as do the valves in animal veins. They are found in the rib veins where they are not needed and are absent from the great dorsal vein where they would be really useful. This is understandable on a theory of ancestral survivals in man, Dr. Stiles pointed out, but is completely contrary to a special-creation theory which assumes that the body of man is perfectly adapted for his present mode of life and made without any useless parts or any mistakes.

MEASURES GIANT STRENGTH OF BIG APES' MUSCLES

A chimpanzee is more than four times as strong as a man of the same weight, according to the results of experiments by Prof. John E. Bauman of Omaha University. Prof. Bauman induced several of the big apes in zoos in various parts of the country to pull a rope attached to a strength-measuring apparatus, and then had a number of football players at Augustana College, South Dakota, try their strength on the same instrument.

It was no easy task, Prof. Bauman states, to induce the chimps to make the pull. The best method seemed to be to get an ape of a mean disposition, who would haul at the rope in a fit of rage. Good-natured monkeys would merely play with it. One termagant named Suzette, at the New York Zoological Park, gave a good, hearty, two-handed pull that registered 1260 pounds, over half a ton. Later on she made another, without putting her full strength into it, marking up 305 pounds. Boma, a good-natured male, the largest chimpanzee in captivity, made a one-handed pull of 847 pounds. Johanna, a female at the Philadelphia Zoological Garden, got into an almost impossibly awkward position for her one-handed pull, yet registered 300 pounds, which is better than the average man can do with both hands under the best of conditions.

The seven football players tested by Prof. Bauman were all husky farm lads, most of them of Viking ancestry. Yet their best efforts fell far short of those of the apes. One-handed pulls did not in any case reach more than 210 pounds, and the best of the two-handed pulls fell a little short of 500.

Since the larger of the men weighed a good deal more than the chimpanzees, Prof. Bauman reduced his figures to a weight-for-weight basis, and then determined the ratio of ape-strength to man-strength. These figures showed that the gentle Suzette was from two and one-half to four and three-quarters as strong as South Dakota's finest, while Boma's strength outranked the human athletes' by between three and four-fifths and four and three-quarters to one.

A by-product of the experiments is an expression of the relation between the strengths of the apes themselves. On a weight-for-weight basis, Boma is one and a quarter times as strong as his female companion; and taken as he is, outweighing her considerably, he is a little over one and one-half times as strong. "It is of interest to note," adds Prof. Bauman, "that the figures of 1.24 for relative and 1.52 for absolute superiority in strength are very common ones for human couples."

But although man is greatly inferior to the apes in muscular power, he appears to hold his own very well as compared with other animals. Prof. Bauman says, "Taking a comparative view we find that, making the necessary allowances for difference in stature and amount of cross-section of muscle in proportion to body weight, man compares favorably with many, probably with most, other animals. We rank considerably above the hoofed animals, and the oft-cited strengths of the beetle and ant, when duly corrected as just indicated, appear to be materially less than our own."

Beets, turnips, carrots, and parsnips frequently send their roots down 10 feet in search of water.

PERUVIAN FEVER GERM DISCOVERED

The Rockefeller Institute is responsible for the isolation of another germ. This time it is the microbe that causes oroya fever, a curious, highly fatal disease that occurs only in restricted localities of the Andes at altitudes above 6000 feet.

In ~~recent~~ recent issue of Science, Dr. Hideyo Noguchi and Dr. T. S. Battistini gave a preliminary report on their work on this organism which they have succeeded in growing for the first time in artificial cultures. It is known as Bartonella bacilliformis and has been recognized for sometime as the cause of Peruvian fever but no one has ever before been able to grow it in the laboratory or to inoculate animals with it. Dr. Noguchi and Dr. Battistini have produced typical forms of the disease in monkeys and have recovered the organism from the red corpuscles of the blood of the diseased animals with which they have infected others.

Since oroya fever can now be produced artificially in the laboratory it can be studied constructively to ascertain protective measures. Its restriction to dark, narrow mountain valleys of Peru has suggested that it is spread by an insect carrier whose range is confined to this particular region. The disease is of long duration characterized by several weeks of fever and a marked destruction of red blood cells similar to pernicious anemia. After several weeks or even months of fever, eruptions occur on the skin which have given rise to the name of Peruvian warts.

The percentage of fatality is fairly high and early accounts of the Spaniards attribute many deaths to this cause. Pizarro is said to have lost 700 men by it. Like tetanus, infection must occur through the blood stream, an additional reason for believing that it must be contracted from an insect bite.

TRAINING FOR MORONS: NOT STERILIZATION

The problem of mental deficiency need not be the great bugaboo we have always thought it, according to Dr. George K. Pratt, assistant to the Medical Director of the National Committee for Mental Hygiene.

Medical science has established, he maintains, that approximately fifty per cent. of the cases of feeble-mindedness are not congenital. This means that the social menace of the mentally deficient is not half so great as the gloomy family trees of the Jukes and the Kallikaks and such notorious clans have tended to make us believe. Feeble-mindedness, when it does not directly originate in the faulty germ plasm received from either father or mother, is due to birth injuries or infectious disease. Spinal meningitis and several of the infantile diseases may result in permanent injury to the brain tissue. The ensuing mental lacks are just as complete as in hereditary cases, but there has been no evidence to prove that they can be transmitted to the next generation.

Less than ten per cent. of the whole number of feeble-minded are of the potentially vicious class. These, it has been found, are comprised almost entirely of neglected types who have grown up in bad environment. In other words, many of the mentally deficient when properly trained and supervised can be fitted in the community as more or less useful citizens.

The individual of low mental test is especially suited to take over many of the mechanical operations of modern industry. In monotonous and repetitive tasks, often excessively distasteful to workmen of higher caliber, he is of unique value.

The new medical outlook holds that only the vicious ten per cent. and the intellectually lowest types should be segregated. Many of the others should be given institutional training according to their various capacities and taught simple trades. Depending on their personality and ability for adjustment to environment, they should be returned to their communities when they can go to work under such supervision as individual cases require.

Surgical sterilization is not a solution for the problem this class presents, according to Dr. Pratt. It is impracticable to administer it with justice, and if administered to all would bring serious attendant evils in its wake. The knowledge that half the mentally deficient are not hereditary cases, as well as the evidence of their potential usefulness, has lessened the fear of them as a social menace until sterilization no longer seems necessary or advisable when its numerous drawbacks are considered.

BLOOD TESTS FOR WHOOPING COUGH

The newest way of attacking whooping cough is by blood analysis.

Dr. C. F. Powers of the Yale Medical School has ascertained by chemical examination that the calcium content of the blood of patients suffering from severe cases of whooping cough is very low. This he remedies by administering calcium chloride. He also advocates applications of radiant energy or X-rays for what he calls the electrical hyperirritability of the nerves or convulsions. These are measures for bad cases that are complicated by a previous condition of rickets but even for children with the more moderate form of the disease without complications, Dr. Powers recommends X-rays.

Ether is occasionally resorted to to quiet the more violent paroxysms while for all degrees of whooping cough the best all round remedy is codliver oil because it helps build up against the condition of malnutrition that often persists till long after the last final whoop.

Dr. J. C. Regan and Dr. A. V. Tolstouhov of Brooklyn have found in making chemical analyses of the blood of whooping cough patients that the hydrogen ion concentration, that is, the acidity of the blood, is greatly lessened in proportion to the severity of the disease. They also noted a considerable decrease in the amount of phosphorous. Just what use can be made of the knowledge of these interesting changes is not yet determined.

Physicians who specialize in the diseases of children use a blood test in diagnosing doubtful cases. It consists of counting the number of white blood cells which increase greatly if whooping cough is really present. It is not certain, but is often of great assistance when considered in connection with other symptoms, for it is very important to keep even the mild cases isolated so that they may not infect other children.

NATIONAL CAPITAL IS QUIET PLACE TESTS SHOW

The nation's capital, with half a million inhabitants and almost 90,000 motor cars, nevertheless goes on record as a quiet place, according to tests made around noon at eleven different points of the city recently. The noisiest spot discovered was at the U. S. Treasury where New York Avenue and Pennsylvania Avenue meet, a corner famous nationally as the point where official parades turn to go down past the White House.

The survey, which was made by K. P. Royce, of the Graybar Electric Company, of New York, is similar to a noise survey recently made in New York City. The instrument used is known as an audiometer, which measures noise in sound units, and is frequently employed in testing the amount of hearing possessed by people who are partially deafened.

The Treasury corner registered 55 units of noise, as compared with 70 units at Manhattan's record breaking spot which is at 34th Street and Sixth Avenue, where the elevated railroad and downtown traffic combine to produce an almost deafening roar.

The quietest place in the capital is at the Lincoln Memorial, near the banks of the Potomac River, Mr. Royce reported. Here the noise record showed only five units, except when the wind blew, at which time the sound of the wind brought the noise up to 15.

The tour of the city took the investigators out to the embassy section, on Sixteenth Street. At the pink palace of the Spanish Embassy they paused, and found that in the street, close by the thin stream of traffic, the sound record was from 20 to 40 units. The region of the Library of Congress and the Capitol proved to be a particularly peaceful neighborhood. The audiometer registered only 10 units in a street facing the Capitol, where there is little or no traffic.

The White House, located in the downtown section of the city, is not so quiet as Capitol Hill, so far as the air itself is concerned. The survey showed that in the driveway of the White House the noise amounted to 30 units.

Mr. Royce concluded that noises in Washington are considerably less in volume and intensity than in New York. The quietest spot found by the investigators who surveyed New York was in Grove Street, between Seventh and Eighth Avenues, a narrow street in Greenwich Village. At this point the instrument registered 10 units of sound.

Considering the effect of noise on the physical and mental health of individuals, Mr. Royce said that "the damage done by noise in Washington is so small as to be classified as negligible."

BABIES TRY DRIED MILK AND GIVE IT O. K.

A small group of babies averaging three months old have been experimenting with a diet of dried human milk and have found it "acceptable". The tests, which were conducted by Dr. P. W. Emerson of the Boston Floating Hospital, are regarded as promising, and the Journal of the American Medical Association predicts that "dried milk may become a successful reality".

Commercial production and distribution of breast milk has for some years been carried on by institutions in a number of cities, so that mothers who have a surplus of milk can sell it for the benefit of young babies whose mothers cannot supply it.

Attempts to preserve this milk, so that its use could be extended, have been made, and experiments with animals show that dried human milk retains much of its nutritive value. The feeding experiment made by Dr. Erickson with the baby squad is the first practical application of the investigation.

Importance of the situation is indicated by the statement made by Dr. B. R. Hoobler, of Detroit, who has pointed out that the greatest percentage of infant mortality is among premature and sickly infants during the first one or two months of life. There seems to be no satisfactory substitute for breast milk so far as these young babies are concerned, he declared, and if breast milk were available many of these lives could be saved.

BLISTER RUST THREATENS SUGAR PINES OF THE WEST

The blister rust which has wrought such havoc with the white pines of the East is less than two hundred miles from the great sugar pine forests of Oregon and California. The western white pine and sugar pine are among the most valuable timber trees of the West, and the Federal Government, itself a large owner of these species in the national forests, is vitally concerned in their preservation from the pest.

S. B. Detwiler, in charge of the office of blister rust control, U. S. Department of Agriculture, stated that recent advances of the rust while greatly to be regretted were inevitable; The continued spread of the disease is to be expected until it reaches the limits of white pine growth, but while it can not be prevented it can be materially slowed down.

The Bureau of Plant Industry has had under way a program of local control in the East since 1922. Through the cooperation of state forestry officials and state extension agents efficient measures have been in operation that have cut down appreciably the loss in the white pine forests of New York and New England.

Curiously enough, this parasitic menace of the white pine is eradicated by uprooting currant and gooseberry bushes in the neighborhood of the pine timber stands. The blister rust is a fungus with a complicated life history, part of which is spent on the leaves of the botanical Genus Ribes, a group which takes in all the cultivated and wild currants and gooseberries. It cannot spread from tree to tree like chestnut blight, but has to go from the pine to the leaves of the currant or gooseberry; and this gives the forester the means of control. Trees cannot be conveniently rooted up but bushes can; so all the currants and gooseberries must be eliminated, particularly the cultivated black currant, which has proved to be a host par excellence for rust spores from pine trees even as far away as a mile. For while the spores from pine trees cannot infect other pine trees the ones from currants can infect other currants so that the disease spreads rapidly through a whole patch, thus materially increasing the radius of the spores. The blister rust control agents, with the assistance of state and county officials as well as the general public, are clearing about a million acres

The blister rust first reached the West at Vancouver, B. C. in a shipment of pine seedlings from France. It was discovered by forest officials in Washington and British Columbia in 1921 and in Oregon in 1922. By 1924 a program was under way to keep it under control, in which Federal and state officials as well as private interests were coordinated.

The vast acreage of western forests, running into millions, made the problem much more difficult than in the East. The first step was to put into effect a field quarantine to prohibit any of the host plants of the rust being shipped into the West. Next a systematic effort was made to completely eradicate the black currant from the states of Montana, Washington, Idaho, Oregon, and California. Through this foresight it is hoped to cut down the chances of infection before it can make any very damaging spread in these states. Already the end of 1925 has seen Idaho and Oregon, practically clear of dangerous black currants.

Effective control work can only be done before the trees are seriously attacked. In consequence a general campaign is under way to educate the people in the knowledge that if the timber is to be saved the currants and gooseberry bushes must go.

PROTECTION AGAINST VOLCANOES URGED

Precautionary measures to prevent loss of life from volcanic disaster are being urged by European scientists.

In a paper published by the Geographical Society of Geneva, Dr. Albert Brun stresses close scientific observation of all the phenomena attending active volcanoes as the best means of guarding against catastrophe. He mentions the study of earthquakes at the volcanoes, registration of sound waves, chemical analysis of gas, use of aviators for reconnoitering and the steady observation of the performances of craters and hot springs as necessary means of being forewarned for trouble.

Dr. Karl Sapper, of the University of Wurzburg, maintains, on the other hand, that the disturbances characteristic of active volcanoes such as appearance of new vents, underground noises, earth tremors, exhalation of gas and the like are not sufficient evidence of a coming eruption. He cites Cotopaxi, Kilauea, Keliet and others as eruptions that have broken out without any such advance warnings. 190,000 people have been killed by volcanoes in the last four centuries, he says. 93 per cent. of which were about the Pacific, the maximum loss having occurred at volcanoes erupting only once with much violence and after a period of long inactivity.

Dr. Sapper advocates as the most effective method of attack, popular propaganda and education of the public in the schools concerning precautions, building sites, steep roofs to shed ash, and readiness to migrate in case of danger. Valley bottoms, the natural paths of the lava flows, should be avoided as places in which to settle. Governmental insurance reserves and rehabilitation are the only means of meeting the emergency of famine and disease, caused by the heavy fall of ash, destructive to plant and animal life alike.

Already some results of the progress in knowledge and education about volcanology have been seen in the handling of the Vesuvius and Etna eruptions. Still better preparation and protection were in evidence at Sakurajima in Japan. Java and Hawaii have cared for disasters with science and forethought and many of the countries which have native volcanoes within their confines are devoting attention to careful building, transportation, and organization for crisis, as never before.

TABLOID BOOK REVIEW

THE RELATION BETWEEN SCIENCE AND THEOLOGY, by C. Stuart Gager. Chicago: Open Court Publishing Co. \$1.00.

A very clear, good tempered and sane discussion of the principles underlying the present evolution controversy. The author explains the method of science and shows that it is not inimical to religious faith. A useful book for the general reader who desires to be fairminded.

CHEMISTRY AND CIVILIZATION by A. S. Cushman. New York: E. P. Dutton & Co.

A new edition of a popular chemistry rich in historical and biographical material. A unique feature that may interest school teachers is a sort of chemical dance, illustrating the Bohr atomic structure, where boys play the part of protons and girls electrons.

E. E. Slosson.

The Guaharibas, a savage mountain tribe of Venezuela, are said to be still ignorant of the use of fire, and eat their fish and other food raw.

Aviators who maintained a forest fire patrol on the west coast last summer discovered 217 fires and were first to report news of 61 fires.

Uncivilized tribes have the ability to see in the dark, not because of especially superior eye sight, but because they have been trained to use their eyes at night.

Descartes, famous mathematician, was a long sleeper, and is often mentioned in support of the theory that the most active brains require long periods of sleep.
